T1-04

The Role of AdeABC Efflux Pump in Multidrug Resistant *Acinetobacter* spp. Isolated from University Malaya Medical Centre (UMMC), Malaysia

E.H. Wong[1], G. Subramaniam[1], P. Navaratnam[2] and S.D. Sekaran[1]

[1]*Department of Medical Microbiology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia*
[2]*School of Medicine and Health Sciences, Monash University Malaysia, No. 20 & 22, Jalan PJS 11/5, Bandar Sunway, 46150 Petaling Jaya*

The AdeABC pump of *Acinetobacter spp.* confers resistance to various antibiotic classes. This pump is composed of the AdeA, AdeB, and AdeC proteins where AdeB is a member of the RND efflux pump superfamily. The *adeA*, *adeB*, and *adeC* genes are contiguous and adjacent to *adeS* and *adeR*, which are transcribed in the opposite direction and which specify proteins homologous to sensors and regulators of two-component systems, respectively. In this study an attempt is made to elucidate the role of AdeABC efflux pump in antibiotic resistance in *Acinetobacter* spp.

39 multidrug-resistant clinical isolates of *Acinetobacter* spp. were used. MIC was evaluated using agar dilution method (CLSI). Presence of AdeABC efflux pump genes were determined by PCR amplification. Subsequently, each gene was inactivated by plasmid insertion to study the contribution of these genes in developing antibiotic resistance and the resulting mutants were tested for their antimicrobial susceptibilities.

Among the multidrug-resistant strains, 36 strains had all the 3 (A,B,C) genes detected, while the remainder 3 strains had one or two of the genes detected. Inactivation of these individual genes showed decreased antimicrobial susceptibility indicating its contribution towards the development of antimicrobial resistance.

The presence of AdeABC multidrug efflux pump plays a major role in the development of antimicrobial resistance in *Acinetobacter* spp. The presence of either one or an interplay between these genes may have an effect on antimicrobial resistance in *Acinetobacter* spp.